NATIONAL PARKS & Conservation Magazine

The Environmental Journal

January 1971

The World Heritage

THE United Nations Conference on the Human Environment, scheduled for Stockholm in 1972, holds out great hope for mankind and all other life on earth. Of great importance is the announcement by the Secretary General that the conference will focus on the creation of institutions to work out solutions to the grave environmental problems of our times.

Thoughtful sessions of concerned experts, like that held under the auspices of the American Society of International Law in New York last April, can make immense contributions. The NPCA has urged that the Nixon Administration take the initiative toward the establishment of an Environmental and Population Organization in the United Nations system at the level of FAO and WHO. Inflexibility of thought as to the form of organization will not be helpful; but precision in the definition of powers, functions, and governing values will be essential.

Obviously, the concept of environmental protection and restoration represents a fundamental value. We have the beginnings—no more than beginnings—of experience in its application in the United States in the Council on Environmental Quality. The CEQ has review, advisory, investigatory, and coordinative authority; it does not have enough staff or funds to perform these functions adequately; it also needs interim stop-order power to hold off destructive projects until the President can consider them in the light of the advice it has to offer.

Some such agency, reporting to the Secretary General of the United Nations, and through him to the General Assembly, is needed in the international sphere. It should be directed by policy minds, not specialized scientists, not project operators.

But there will also be a need for an operating structure, functioning under the close direction and review of the policy structure. In the United States we have had such agencies as the Federal Water Quality Administration, now merged into Environmental Protection Agency, with a measure of operating authority in its limited field. The really dangerous and destructive operators, like the Army Engineers, have been left free to roam at will across the countryside. The talents of the ablest administrative and international lawyers will be needed to put together a much better structure at the international level before disaster overwhelms the world.

As an example, discussed editorially on this page recently, the Aswan Dam is a monumental exhibit of mistaken developmental policy, destructive, not beneficial to the people of Egypt, by reason of the environmental damage it has entailed. Construction was premised on the conventional values of big hydropower and big irrigation; these fetishes have governed policy in the urban-industrial countries, mainly the United States and the Soviet Union, for a half century and more. New values need to be defined, new objectives set, completely new programs devised (as they can be) to benefit the people in the world's river basins within the context of environmental protection.

As another example, we published recently on the last stand of the Asian Lion. India, within whose boundaries the remaining 200 individuals of this magnificent species still survive, is rightly concerned with protection; likewise conservationists the world over.

The problem is basically sociological: in part, how to help the farmers in the communities around the forest preserve to lift themselves out of a poverty so deep that they must compete with the lions for their kills.

India should receive generous economic aid from the world community toward getting these farmers on their feet, as part of a combined program to help the people and save the lions. The people and the lions are both part of the World Heritage which must promptly be rescued.

As another example, we have published recently on the horrors of big-bulldozer, hard-pesticide, monoculture forestry as practiced by the big timber corporations in the United States. These corporations, of course, have long been the dominant institutions of urban-industrial society; one of these days the American people will guide them firmly toward socio-ecological purposes. Meanwhile, they run at large in the world economy.

The prospect is that the forests of Indonesia, just for example, will be clear-cut or high-graded, and then replanted with exotic species, or in monoculture, with ruinous effects on the ecologies of the areas. The destruction of the environment will mean the destruction of the people. Such operations can easily be controlled through the United Nations system, and meanwhile by unilateral action by the governments of the countries of origin.

The imperatives of population stabilization and reduction are so closely linked with environmental protection that they cannot be separated. Whether one operating agency with responsibility in both fields should be created, or two with closely co-ordinated programs, is relatively unimportant. The United Nations must undertake to function effectively in both areas if it is to meet the test of the age.

The environmental criterion of value has been mightily helpful; a breakthrough into policies of survival has been achieved in its name in the United States and the United Nations. Attention must be focused, however, on the ecological imperative, which is something more than environment.

In America, the Army Engineers are taking the environmental concept in their stride and proceeding with their remunerative business as usual. We now have Preservation of Stream Environment (PSE), meaning low-flow augmentation, highly destructive to the natural ecosystems which are dependent on rhythmic fluctuations, as a so-called benefit in calculations supporting big-dam projects.

No, it is the ecosystems which have to be protected and restored, for man belongs to them. The delicate, semi-stable balances of nature, of which mankind is a part, must be given priority over construction and development, if men are to survive. The protection of nature is still valid as the basic criterion of international environmental policy.

—A. W. S.

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COVER *Redwood Forest by Philip Hyde*

National Parks & Conservation Association, established in 1919 by Stephen Mather, the first Director of the National Park Service, is an independent, private, nonprofit, public-service organization, educational and scientific in character. Its responsibilities relate primarily to protecting the national parks and monuments of America, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic, and to protecting and restoring the whole environment. Life memberships are $500. Annual membership dues, including subscription to National Parks & Conservation Magazine, are: $100 sustaining, $50 supporting, $15 contributing, and $10 associate. Student memberships are $8. Single copies are $1. Contributions and bequests are needed to carry on our work. Dues in excess of $10 and contributions are deductible from federal taxable income, and gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, correspondence concerning subscriptions or changes of address, and postmaster notices or undeliverable copies to Association headquarters in Washington. When changing address, please allow six weeks' advance notice and include old address (send address label from latest issue) along with new address. Advertising rates and circulation data are available on request from the Advertising Manager in Washington.

THE MYSTERIOUS CHISOS

JEAN GILLETTE

BLUE HAZE OFTEN SHROUDS the starkly rugged Chisos Mountains of Big Bend National Park in western Texas with an air of mystery and foreboding—a haze that encompasses a welter of lost-mine legends, Indian ghost stories, and cattle rustler and bandit tales. Beyond a long and fascinating tale of human interest, moreover, there is another story, just as fascinating in its own special way—the natural history story. Here the flora and fauna are a veritable scramble of American and Mexican species, a remarkable study in itself. In addition, the turbulent geological history of the Chisos has, over the years, more than once fired controversy among the professional geologists, those interpreters of the earth's inanimate past.

For example, something about the deep valley in the northwestern corner of the Chisos caused one California geologist to compare it with ice-carved Yosemite Valley. Not so, retorted Dr. Ross A. Maxwell of Austin, Texas, the park's retired first superintendent and one of its principal geological investigators. No glacier has ever clung to Chisos slopes, nor scoured its steep-walled canyons, Maxwell said.

Another observer postulated that the Chisos Basin, in the heart of the range, was obviously the crater of a long-dead

TEXAS HIGHWAY DEPARTMENT

The Chisos Basin as seen from the south slope of Pulliam Peak. In the background, left to right, are Ward Mountain, the Window, and Vernon Bailey Peak. Large plant in foreground is ocotillo; smaller spiky plants are lechuguilla.

volcano; this theory was not a bad guess, with all the old lava flows and ash beds stacked helter-skelter in the surrounding Big Bend country. But *he* missed, too, according to Maxwell, who spent some 30 years studying the rocks and mountains of the Big Bend.

Although many of the rocks that jut grotesquely skyward in the Chisos originally were blasted from a volcano's vent or poured down its flanks as fiery rivers, this is no geologically young volcanic landscape such as that at Lassen Volcanic National Park in California. Most of Big Bend's underworld fires went out some 20 to 30 millions of years ago.

THE GEOLOGIST'S EYE sees the Chisos Mountains as a classic example of erosion's work, in an arid or semi-arid climate, on rocks of several types and varying toughness. Geologist Maxwell said, "The present terrain gives the impression that when Mother Nature had finished cutting the canyons and carving the many topographic features, she turned off the water supply."

For millions of years each passing summer thundershower gnawed at the Chisos' soft heart of volcanic debris and dumped a mélange of mud, sand, and cobbles through a gorge known as the Window. Erosion sculptured goblin spires on Pulliam Peak's massive shoulder and left the

fancied profile of Apache chief Alsate on its crest. Frost wedged open joints and cracks in massed lava layers to shape Casa Grande's flame-hued walls and turrets. Loosened boulders skidded downslope when rain or melted snow moistened slippery clay. When running water found its way to softer clays and sands beneath hardened lava caprock, it ate out these layers and let the red-brown prophyry collapse. Thus was born the geologically controversial Chisos Basin.

The beauties and fascinations of the Chisos are of a subtler nature than the spectacular grandeur of the Sierra Nevada. As mountain ranges go, the Chisos are modest in extent and elevation. Only the furnace blast of midsummer and the armored vegetation of the region immediately and often lastingly impress the tourist who hurries through in one day. Too often a scurrying traveler, such as one I once overheard, dismisses the ghostly peaks and their surrounding skirt of debris as a "desolate desert."

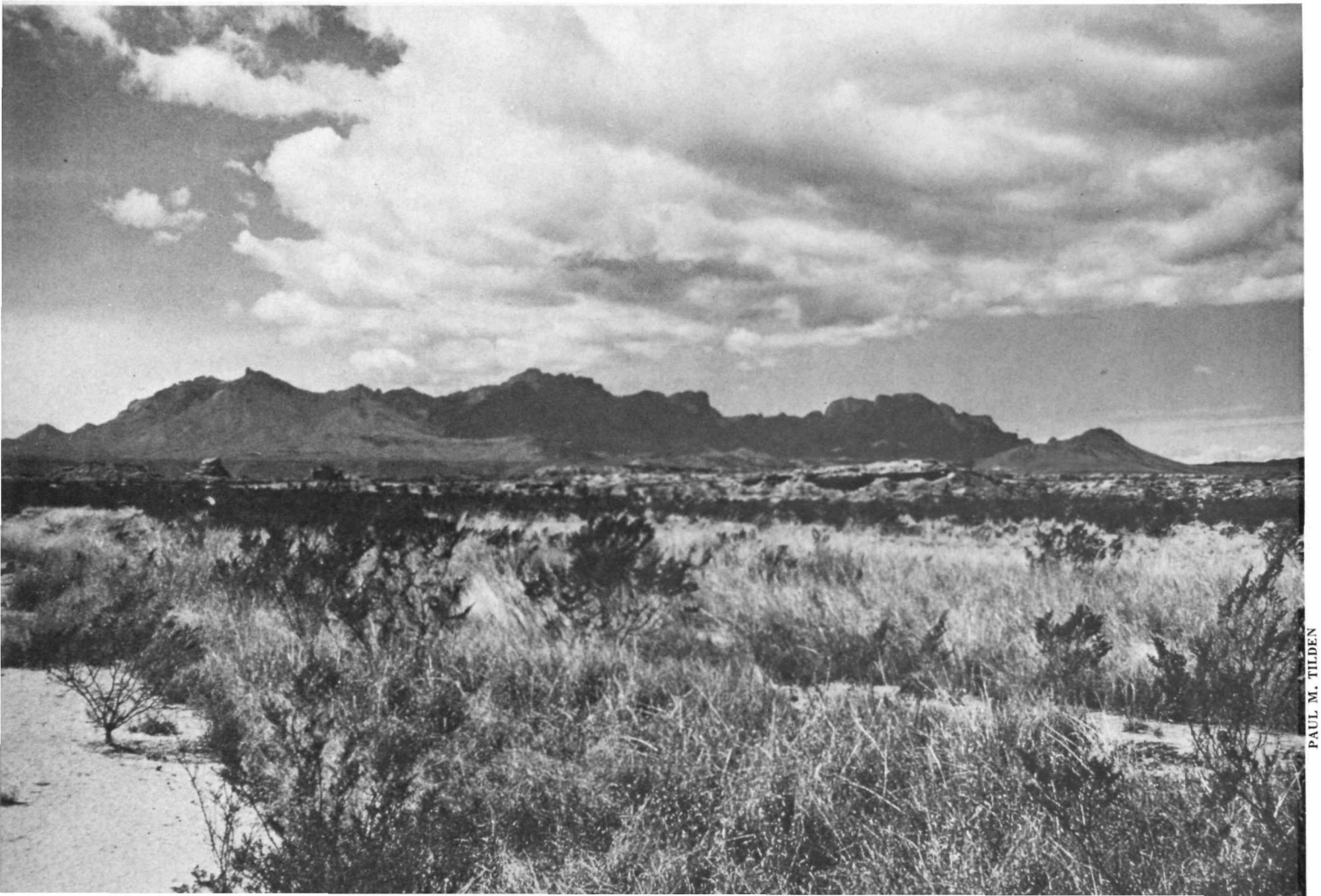
Unflatteringly, but truthfully, the Chisos Mountains might be likened to a great stone trash pile heaped in the middle of a deep trough in the earth's crust. By all approaches to the national park that protects it, the range looms as a fortress thrown up by a Titan to guard the Rio Grande fords. In shimmering heat the castellated mountains seem to float in the sky like a ship on a becalmed sea; but later the mid-day glare fades the mirage into somber flatness. The ghostly Chisos become a dusty-brown reality.

Transformation of the fairy-tale image into dusty rock leaves one wondering how these strange mountains "happened." To understand how the Chisos came to exhibit their present form it is necessary to dig deep into geological history, as Maxwell and other geologists have.

During the latter part of geology's Middle Ages—in the closing phases of the Cretaceous period, perhaps 80 million years ago—the climate of the Big Bend country was far different than it is today. In seaside marshes lounged the mighty crocodile *Phobosuchus riograndensis*—whose toothy 6-foot skull has been unearthed in the shadow of the Chisos—in the company of monstrous animals such as *Triceratops*, the horned dinosaur, and an amphibious duck-billed dinosaur. In the Cretaceous sea that lapped the region swam giant turtles, garfish, and sharks.

WITH THE BEGINNING of the Cenozoic era, the latest of the grand divisions of geologic time, the low-lying coastal plain of today's Big Bend stirred to a more marked beat. The sea retreated eastward and the land grew drier. While earlier mammals foraged on land underlain by thousands of feet of Cretaceous limestone, earthquake tremors here announced the slow subsidence of the earth's crust that would create a trough about 40 miles wide—the Sunken Block of Big Bend geology.

From any distant point of the compass the Chisos Mountains seem far from friendly, and under certain light conditions the attitude of this vast volcanic trash-heap may strike the visitor as really menacing. This view is from the north.



PAUL M. TILDEN

This early Cenozoic moving and crumpling of the earth's crust was doubtless an echo of the massive upheavals that created the first generation of Rocky Mountains, later to be followed by our modern range. Soon volcanic forces joined the bending and buckling. In that remote age of Big Bend history, perhaps between 30 and 60 million years ago, we can well imagine that the landscape frequently resembled portions of Dante's *Inferno*.

But no geologist today can take you to a Big Bend crater. Because of the nature of ash, cinders, and lava blocks, few volcanic cones survive long, at least in geologic time. A million years of wind and rain, heat and frost reduce the tallest cinder cone to a formless mass. So, aside from a blanket of lava flows and ash beds, what today's geologists or casual visitor to the Chisos sees is really exposed volcanic "plumbing." Although one need not travel to the Big Bend to see such decayed volcanic works and terrain, the Chisos display the shape of the underworld as well as any other locality in the world. In few places has the basement mechanism of volcanoes become such a bewildering fantasyland and geological showcase. So strange is the landscape, particularly in the lower, southwestern portion of the range, that Apollo astronauts studied it in preparation for lunar landings.

The molten rock that gave rise to Big Bend pyrotechnics originated in "chambers" several miles beneath the surface

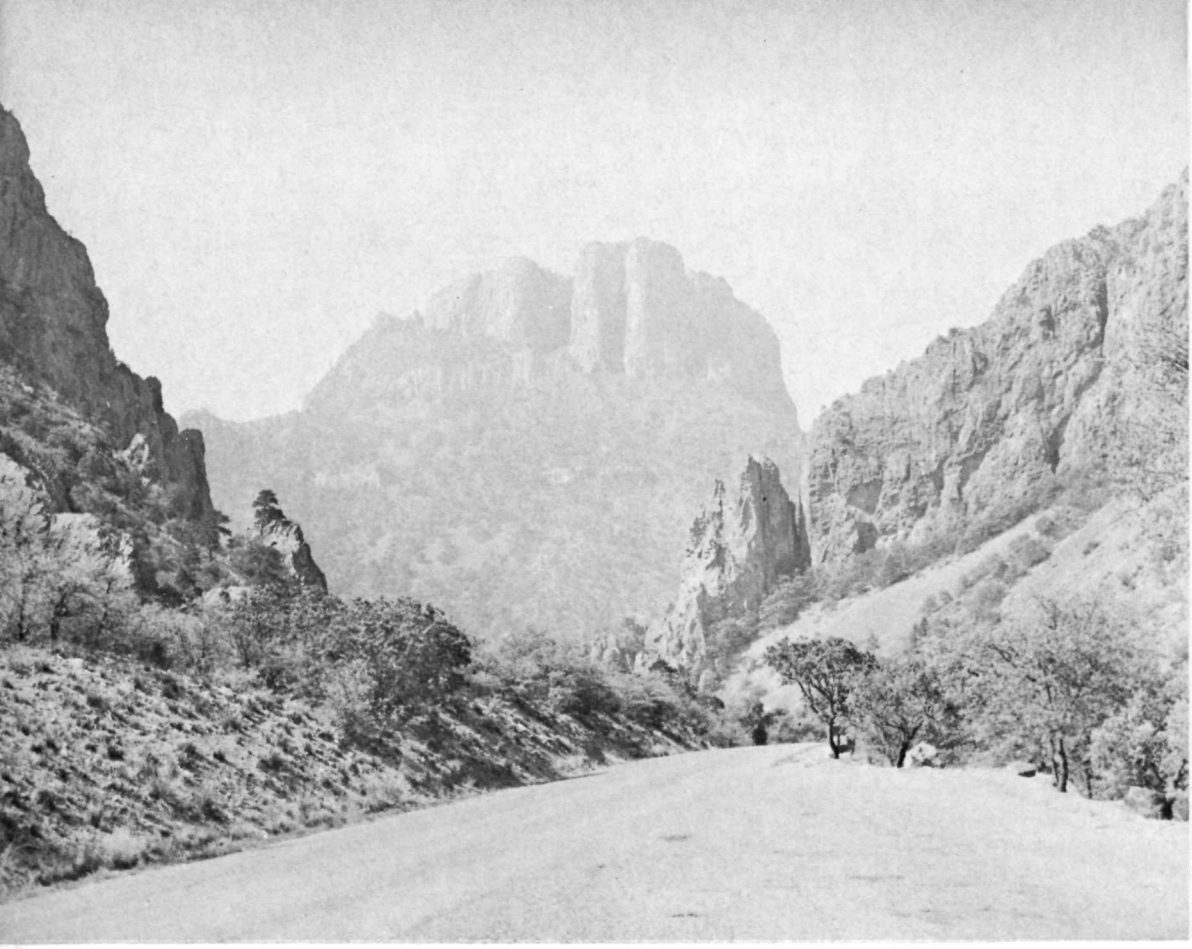
Jean Gillette holds a degree in geology and is editor of the Texas Academy of Science *Newsletter*. As science writer for the San Angelo, Texas, *Standard-Times* she won in 1967 the American Association for the Advancement of Science–Westinghouse $1,000 prize for newspapers under 100,000 circulation. After being ineligible in 1968, she received honorable mention in 1969 in the same category.

—though the cause of such local melting is unexplained even to this day. To reach the surface the liquid rock forced or melted its way through whatever rocks lay above it. Any joint, crack, or line of weakness was breached. Sometimes the molten mass, under immense pressure, managed to squeeze into a relatively weak plane between two sedimentary rock units. At other times finger-like dikes cut across them, creating a crazy-quilt pattern. Especially favorable sites beneath the overlying rocks became miniature domed chambers from which a pipe or conduit reached a volcanic vent on the surface. During ensuing eons the softer overlying rocks eroded away, exposing the harder volcanic "plumbing." Thus the volcanic substance that once filled cavities was exposed as domes and spires.

Such features as Sierra Quemada, Elephant Tusk, Tortuga (turtle) Mountain, Backbone Ridge, Dominguez

From a high point in the Chisos, the view southwestward includes, from left to right, the Elephant Tusk, Backbone Ridge, and Dominguez Mountain. A windswept pinyon pine frames this photo, taken on the South Rim Trail.

JEAN GILLETTE



JEAN GILLETTE

On the Basin Road in the heart of the Chisos range, Casa Grande, above, rises like a phantom castle, its hard outlines softened by haze. Below, a volcanic neck in the raw, parched southwestern sector of the park looms over an eroding bed of brilliantly white tuff and a sparse growth of well-armed cactus and ocotillo.

PAUL M. TILDEN

Mountain, and Hayes Ridge are parts of the Chisos plumbing. Mule Ear Peaks, which seem as though they should be a couple of volcanic pipes, are actually resistant portions of a dike, another illustration of the role that erosion played in shaping Chisos scenery. Radiating outward from Dominguez Mountain, one of those domed chambers, is a swarm of small dikes.

The so-called "petrified tree" at the base of Cerro Castellan is the "neck" of a volcanic vent, according to Maxwell. The lava-flow structure looks like wood grain; a cobble ripped from the vent wall supplies the knothole.

The massive dark basalts, breccias, and granite-like rocks of the Chisos and South Rim Formations once covered most of the park. Of these, Maxwell measured a thickness of about 5,000 feet in the highest parts of the mountain range where they cap Casa Grande, Toll Mountain, Emory Peak, and Lost Mine Peak.

Erosion swept most of this cover away even before the volcanic fires had cooled. The western face of Goat Mountain preserves striking evidence of this. There one may see a canyon cut into Chisos Formation basalts down which South Rim Formation rhyolites later flowed. It is a strange feeling to stand by the roadside and trace the birth and death of an ancient watercourse that flowed at right angles to present drainage, and to see what once had been a valley now a mountainside. But it is no stranger than some of the effects created by the changing play of light and shadow and the parade of color from rosy purples of sunrise to molten reds and golden yellows of sunset.

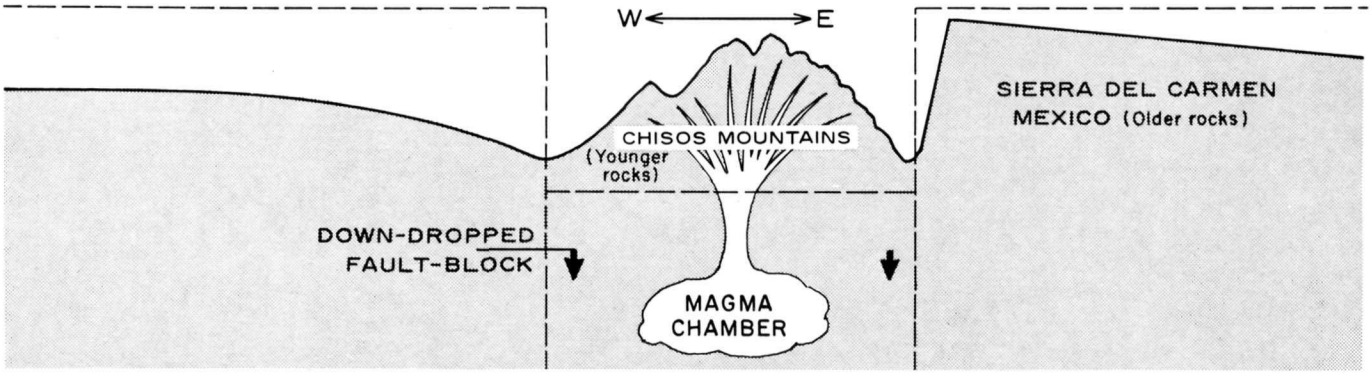
In the last chapter of Big Bend mountain-building a crescentic mass of plastic rock pushed upward from the southeast and solidified at a depth of perhaps 2,000 feet. Today this mass, stripped of the rocks that once covered it, stands as Ward Mountain and Vernon Bailey and Pulliam Peaks on the northwestern flank of the Chisos. On its way it shoved a chunk of earlier sedimentary beds upward and crumpled them under the tough lava cap. These poorly cemented sands and clays with bits of flaggy limestone came to rest where the Basin is today. When water seeped through joints in the overlying lava it sapped the soft rocks and carved the Basin's only outlet, the Window.

Bearing giant oyster shells and other fossils, some of these beds are literally plastered against the vertical face of Ward Mountain. Where the warm mass of rock made contact with limestone, traces of gold and silver were deposited, and they were mined in 1914 and 1916. Despite legends of an old Spanish gold mine on Lost Mine Peak in the northern Chisos, this is probably the only mineralization of any significance in the range. The only mineral within park boundaries that made any money for its exploiters was the quicksilver mine on the northern flank of Mariscal Mountain. Just outside Big Bend National Park to the west, however, is the Terlingua–Study Butte mercury district, which during its day produced at least 150,000 flasks of mercury of 76 pounds each, the standard sales unit of measure for this silvery element. In a side trip the national park visitor may make a guided exploration of one of the mines in the Study Butte area.

When earth-moving violence ceased, perhaps 20 million years ago, it left two great blocks of Cretaceous limestone facing each other across the Sunken Block. Rocks on these tilted and uplifted fault blocks are much older than the rocks in the Chisos. One of the natural history ironies of Big Bend is that Emory Peak, the park's highest mountain and third highest in Texas, stands in the heart of the structurally lowest area. For example, from the South Rim Trail

PAUL M. TILDEN

The harsh texture of the tuff formation in the photo opposite is revealed in closer detail. Chunks of lava settle in ravines with the slow erosion of the tuff.



This highly idealized and simplified sketch shows how older sedimentary rocks of the Sierra del Carmen, across the Rio Grande in Mexico, can lie higher than the younger volcanic rocks of the Chisos Mountains on the United States side of the border. During the geologic past a large block of the earth's crust west of the Sierra del Carmen moved downward in relation to adjacent surfaces and was later covered by volcanic outpourings now seen as the Chisos Mountains. The dashed lines indicate a hypothetic original earth surface in the region and are intended only as a baseline; actual earth-movements in the Big Bend area have been very complex over the course of millions of years.

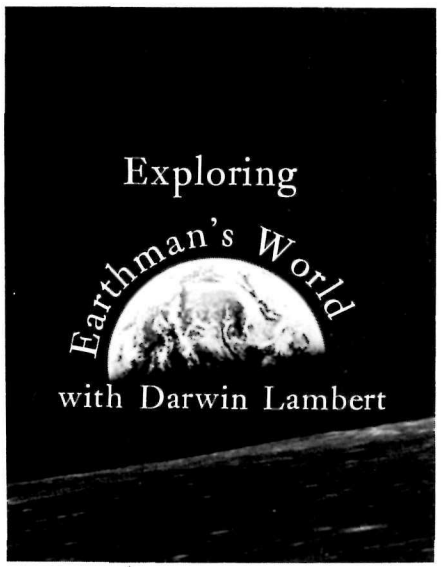
one can see the mighty 8,000-foot fault scarp represented by the western face of the Sierra del Carmen, across the Rio Grande in Mexico. The Sierra del Carmen, capped with rocks 40 to 50 million years older than those on the South Rim, soars to more than 10,000 feet, putting these older rocks 3,000 feet higher than the youngest rocks in the center of the Sunken Block.

Normally one would expect to find younger rocks standing higher than older rocks, as in the Marathon Basin area north of Big Bend National Park. But like the origin of the Basin, Alsate's face eroded into Pulliam Peak's crest, that mountainside valley on Goat Mountain, the bit of gold and silver not where legend says the Lost Mine is supposed to be, and the subtle moods daily sweeping across the Chisos, nothing is "normal" in the topsy-turvy world of the Big Bend.

Mystery shrouds even the name "Chisos," often misinterpreted as Spanish meaning "ghost," "spirit," or "phantom." More than likely it is a corruption of an Apache word meaning "people of the forest" applied to Alsate's band, which holed up in the forested mountains. Some link it with the Spanish word for goat, *chivos*. Somehow, however, the romantic misinterpretation fits better, for the Chisos possess their own special feeling or spirit.

From Big Bend National Park the sheer face of the Sierra del Carmen, across the Rio Grande in Mexico, is a sight never to be forgotten in its blood-red evening glow. Geologically, this mighty crag is the eastern wall of the so-called Sunken Block, whose center is occupied by the Chisos Mountains.

PAUL M. TILDEN



A series of short articles examining man's relationship to nature.

THE OUT TRAIL

Edward A. Shead

". . . Men bulk big on the old trail, our own trail, the Out Trail, And life runs large on the long trail, the trail that is always new!"

That is the way Kipling sums it up in "L'Envoi," and perhaps it explains why, in 1970, by the end of August, nearly 129,400,000 people had visited the National Park System areas. Of this multitude who obeyed the call of the outdoors, a minority left their cars and trailers at the end of the road, stowed tents and sleeping bags, packed portable stoves and cooking utensils, and on horseback and on foot escaped to the mountains, forests, rivers, and lakes. More people went no farther than the end of the road, stayed for a night, a day, a week, perhaps a month, in cabins, lodges, and motels from whence they explored the trails, fished the streams, swam in the lakes, climbed the mountains, or just sat and listened in the silence of desert places.

The fact that fascinates me, however, is that many of these people were from the centers of urban population, people who, for the most part, had never sat by a campfire in the wilderness, heard a coyote howl, seen a deer browse, or watched an eagle in flight; and I ask myself, "Why?"

Why this great exodus to a world unknown? Why this urge to return to the primitive?

Escape, perhaps, from television, radio, and screaming commercials? Cocktail parties, bridge clubs, country clubs, power mowers, and charge accounts—escape from the myriad activities squeezed into the hours between leaving office, shop, or factory and the late, late show?

Or is there something else? Something other than escape to explain statistics tabulated in government reports? Something else accountable for man's increasing awareness of that "little song that sings along the canyons and the ridges/Where the world is gashed and broken and has crumbled round the edges. . . ." (Author unknown)

Each time I shoulder a pack or saddle a horse and head into the silent places, I remember an old man who, many years ago, I found sitting on a rock near the rim of the Grand Canyon. We sat for a long time while colors changed and merged above the gulf below; then he said, "This is how it was before man came; this is how it will be when man is no more; and God lives forever and ever."

Amid the confusion of today's living is man becoming more conscious of his need for solitude? Bishop Sheen once said, "Man talks too much." Perhaps today man needs to listen, not to himself, not to the babble that surrounds him, but to that which is within him.

Unrecognized, prompting from deep within his consciousness, is it this fundamental urge that drives him to escape the demands of whistle, clock, and bell and seek the Out Trail?

Outdoors time takes on new meaning. It is measured no longer by the hands of a clock, but by the flush of dawn, the full of noon, the close of evening, and twilight that precedes the star-studded dark of night.

Man's senses become attuned to the wilderness, to the world of river, lake, and stream. His perception broadens with vistas of rolling hills beneath sleeping breadth of sky. He listens eagerly for sounds—rustling leaves; rubbing, creaking, tired sounds of trees growing old; the fall of a pine cone; and scampering rush of clawed feet.

He finds pleasure in the lapping of water on a pebbled shore; in the swift turn of paddle against the current; in the creak of oars and thrust of boat in white water. He finds satisfaction in the play of muscles long unused, in the ring of an axe biting deep; in the smell of pine knots burning and the leaping flame of a campfire.

Long ago when his surroundings stifled the true expansion of his spirit, man sought the far places in which to build altars unto his gods. In the beauty and loneliness of the mountains, in the depths of the forests, in the silent desert places, he received strength and guidance and went forth unafraid.

Today, the veneer of our civilization has dulled man's senses, almost destroyed his body, and raised up false gods to deceive him. But deep within the mystery of his being is the urge—the urge to follow the Out Trail into the wilderness, into the silent places where beauty lies untrammeled; where, for a little space of time, he is his own man; and where, when his campfire is lit and the stars come out and wind blows free from half a world away, he is at home. ■

Redwoods: Saved or sorry?

HOMER GASQUET

HOMER GASQUET

The authorization of Redwood National Park was a conservation victory with a tarnish, protecting only a small fraction of the magnificent, ages-old coastal redwood forests that should have been included. Park boundaries also failed to follow watershed boundaries; the higher slopes of certain watersheds whose main streams are in the park have been clear-cut, with disastrous effects in the park.

These photographs represent the destruction that still is being visited on the coastal redwoods. Clear-cutting allows rainfall to run off fast, along with plenty of topsoil from the slopes. The resulting floods undercut stream banks and cause the redwoods growing along the banks (often the finest specimens) to topple. The eroded hillside soil silts up the stream channel, making flooding even more likely.

DAVID VAN DE MARK

CALIFORNIA DIVISION OF BEACHES & PARKS

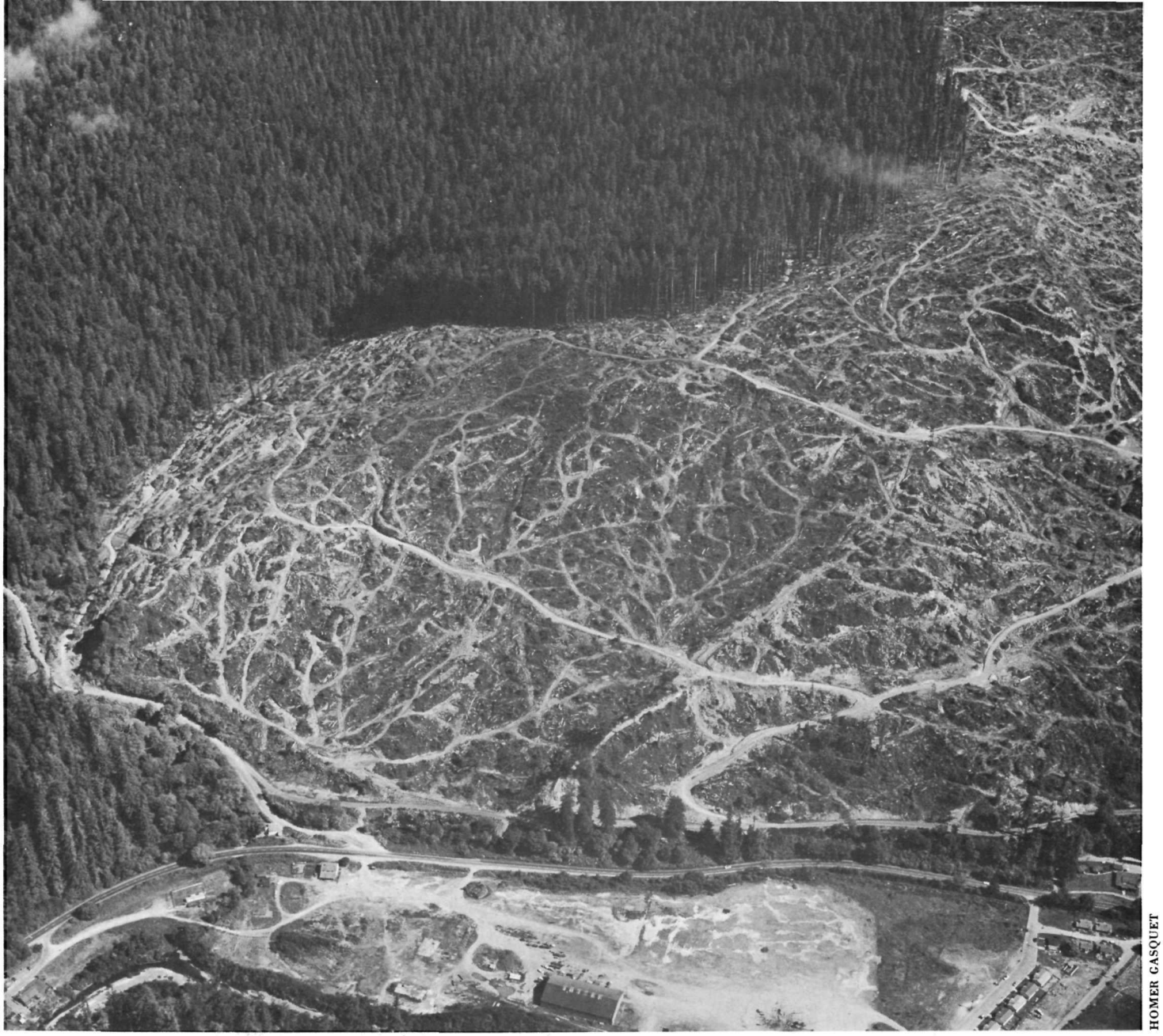
← Overleaf: Aftermath of commercial redwood logging in 1967.
Photograph by Tyler Childress.

HOMER GASQUET

DAVID VAN DE MARK

A redwood forest is Lilliputian as well as Brobdignagian. Clear-cutters grind it all into the mud, all but the last traces of life. Selective cutting preserves the character of the forest, its ferns, mosses, and wildflowers—and most of the serenity it offers the weary.

U.S. FOREST SERVICE



HOMER GASQUET

"By ecological forestry we mean the harvesting of timber by methods which leave the soil, vegetation, wildlife, watercourses, and the forest canopy itself intact. With such management the scenic and recreational potentials of a commercial forest can be maintained while valuable economic resources are utilized. . . .

"Unfortunately, it has been the prevailing practice and more and more customary for large corporations, managing extensive forest holdings, to clear-cut their land; even though cut-over areas may be replanted, they are normally unsuitable for recreational use for many long years thereafter. . . .

"For *Sequoia sempervirens,* the coast redwoods, the problem is to complete the establishment of Redwood National Park, and to extend ecological forestry practices to the management of the entire coast redwoods belt. Nothing more important could possibly be done for the protection of the sequoias than to stop clear-cutting in the commercial coast redwood forest; the redwoods regenerate well in the shade and are an ideal species for selective cutting."

—NPCA President Anthony Wayne Smith in his 1970 annual report

REFLECTION

Dark on the river
Time's icy pendulum stands
Immobile.

Deer forsake these quiet shores
For distant, fog-rimmed hills.
Gulls seek a wilder sky.

The bridge stands stoic
Stretching from Then to Now

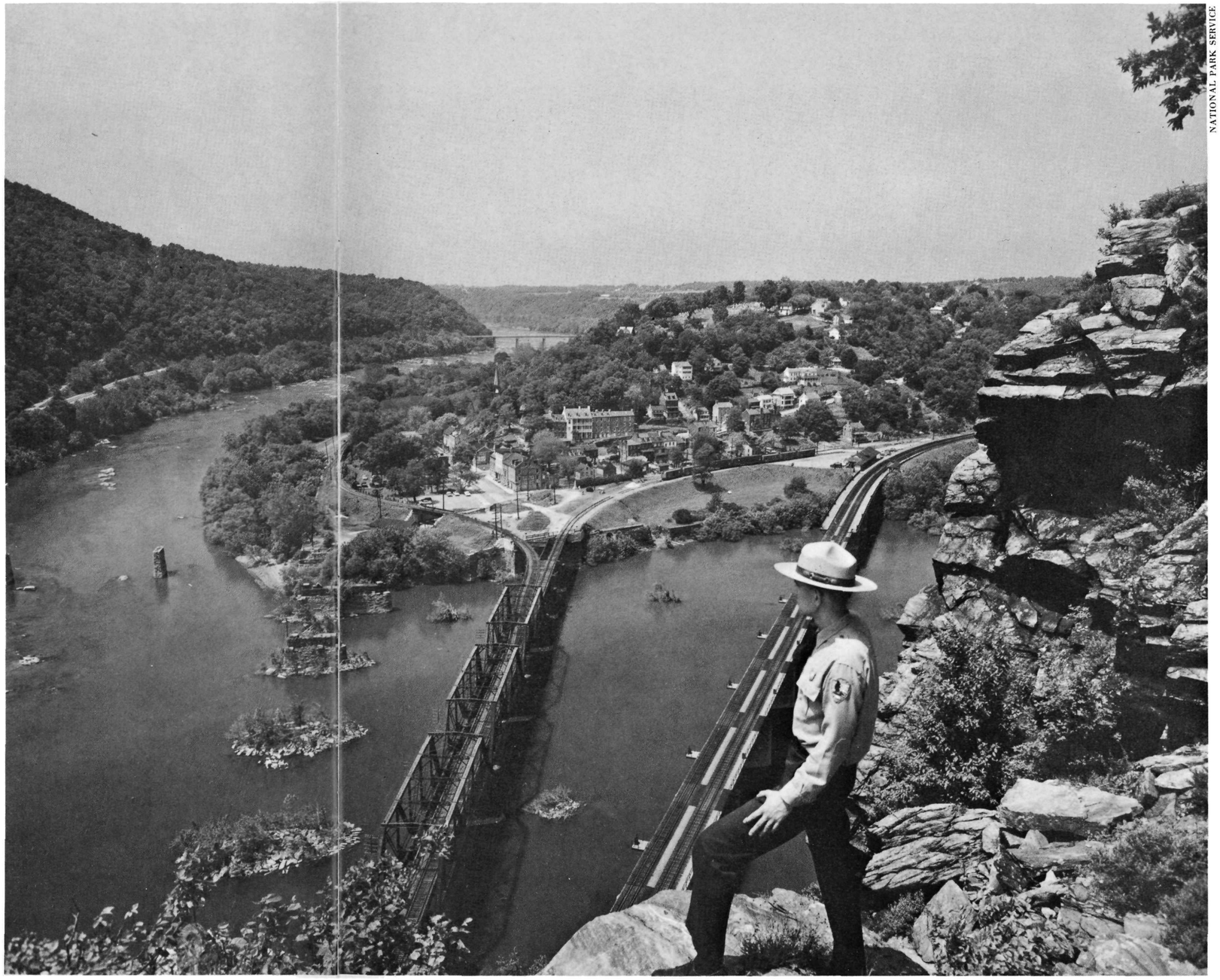
While the ice floes wait, impassive,
And the river holds silent communion
With eternity.

DOROTHY TREBILCOCK

HARPERS FERRY

ARSENAL OF AWARENESS

Robert B. Kasparek



NATIONAL PARK SERVICE

Viewed from Maryland Heights, Harper's Ferry, West Virginia, perches rather precariously at the point where the Shenandoah (on the left) meets the Potomac.

RECENTLY I took part in a spirited discussion at a seminar about the meaning of environmental interrelationships. The goal of the seminar was to search for better ways of relating our understanding of the environment to our performance as National Park Service employees. This meeting was part of the advanced and intensified training the Park Service offers its employees as a regular part of their career development.

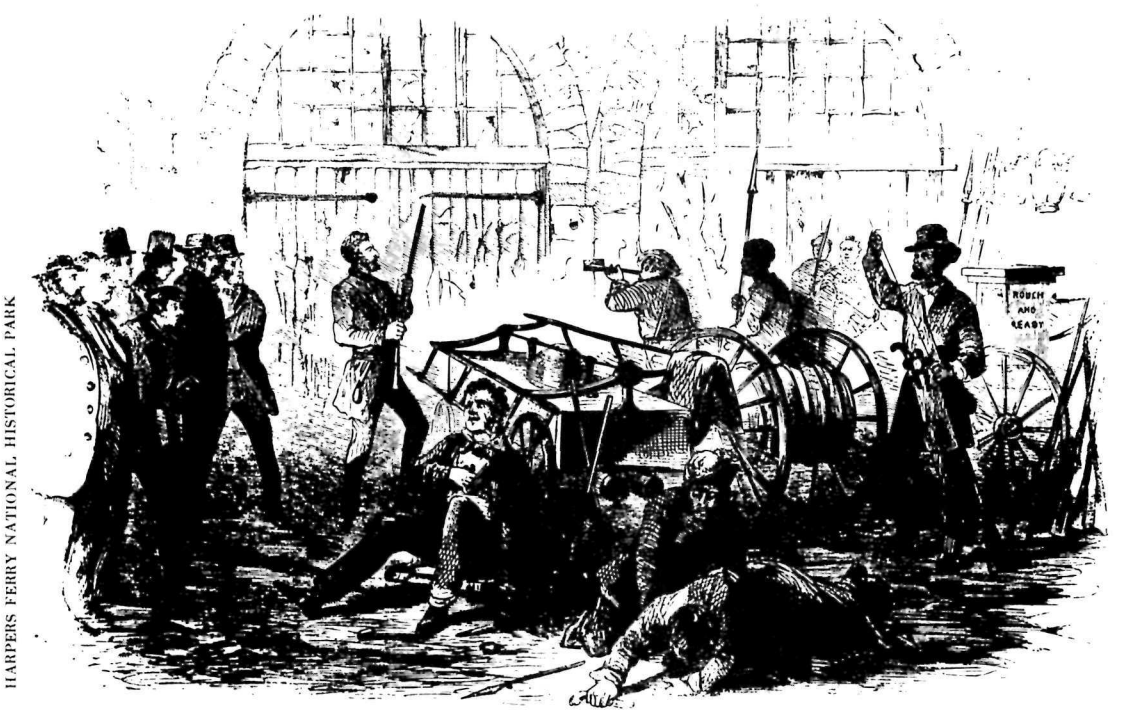
Such training is rather new in park management work. Old-time rangers learned their jobs in the saddle, out on the trails and streams of the "backcountry." But they soon found that people tend to congregate, even in the majestic natural settings of our national parks. This concentration often created problems more immediate and difficult than those facing the natural resources and indirectly or directly affected the natural values. Park management had to meet these growing sociological challenges. Park rangers and managers are now trained to be knowledgeable of the latest social and managerial attitudes and how to adapt change to a modern, flexible park management program. To help conduct this important training, the Park Service established its Stephen T. Mather Training Center, located at Harpers Ferry, West Virginia.

The story of the Mather Training Center is part of the history of Harpers Ferry, often a scene of change. In 1743, Robert Harper, an enterprising Philadelphian, passed by this point where, as Thomas Jefferson wrote, the Shenandoah and Potomac Rivers "in the moment of their junction, . . . rush together against the mountain, render it asunder and pass off to the sea." Attracted by the beauty of the two rivers with the mountains rising steeply on each side, Harper decided to make his home here in 1747. He bought the homestead of Peter Stevens (the place was known then as "Peters Hole") and began running a ferry boat across the Potomac and operating a flour mill on the Shenandoah. One of the disastrous floods that irregularly ravaged the river valleys has long since destroyed the ferry and mill, but Harper's house, which he began building in 1775, still may be visited today.

The next change came in the 1790s, when war with France seemed imminent to our infant republic. American troops under General Pinckney bivouacked on the hunchbacked top of the peninsula wedged between the rivers. That part of Harpers Ferry was afterwards known as "Camp Hill" and became the focal point of the Training Center story.

George Washington recommended Harpers Ferry as "the most eligible spot" on the Potomac for a federal armory. The United States purchased the land for this purpose in 1796, and by 1801 the first muskets were produced. In 1819 Robert Hall arrived at the armory to begin production of his breech-loading rifles with innovative interchangeable parts. Mass production methods brought many armorers and gunsmiths to Harpers Ferry, and in a few years they were turning out thousands of arms. The railroad came through the gap in the mountains in 1836, ferrying itself across the Potomac on an S-curved bridge. The little town's population gradually rose until by 1859 it had reached 2,000.

In 1859, a stranger who called himself Isaac Smith came to town, and Harpers Ferry's best-known event was about to take place. Isaac Smith was the *nom de guerre* of John Brown, the abolitionist who brought his band of followers here to rally Negro slaves to his cause. Brown's ill-fated raid illustrates the association Harpers Ferry has had, not only with change, but with irony. Brown's ardent fanaticism not only convinced himself that he was to be a



HARPERS FERRY NATIONAL HISTORICAL PARK

Interior of Engine House on October 18, 1859, just before the gate is broken down by the storming party. Colonel Washington and his associates are being held by John Brown as hostages.

great Negro liberator, but also influenced others, such as the well-known Negro Underground Railroad Conductor, Harriet Ross Tubman. She considered him, rather than Lincoln, as the true emancipator of Negroes. Yet the first person Brown's raiders killed that night of October 16, 1859, was a free Negro, Heyward Shepherd. When they hanged John Brown at Charlestown in December, stationed as a member of the military guard was Private John Wilkes Booth, later the assassin of the Great Emancipator.

Brown's raid, of course, was the prelude to the Civil War. During the 5 years of conflict, Harpers Ferry saw men fighting their see-saw battles up and down the Shenandoah Valley and at the bloody fields and orchards of nearby Antietam and Gettysburg. The town itself changed hands nine times, and at the end of the war Harpers Ferry was left burned and battered, nearly a ghost town.

But there was still a spark of life on Camp Hill. On top of the hill were buildings that housed the Superintendent of the Armory, his paymaster, and clerks. Abandoned after Lieutenant Roger Jones had blown up the arsenal and retreated across the Potomac in 1861, the buildings sheltered refugees during the war. In 1864–1865, Florence Mann, niece of the famous educator Horace Mann, taught school in the Superintendent's house.

In 1865, Congress created a Bureau of Refugees, Freedmen, and Abandoned Lands, popularly known as the Freedmen's Bureau. It was administered by the War Department and had the responsibility of caring for the displaced persons and lands that had been uprooted and disrupted during the war. This included the education of freed slaves. The Freedmen's Bureau decided to continue the educational efforts started by Florence Mann and appointed Nathan Brackett, a graduate of Dartmouth College, as its first agent at Harpers Ferry. Brackett was a member of the Freewill Baptist Church of Maine and had been in the U.S. Christian Commission during the Civil War. This Commission was an organization of volunteers similar to a combination of today's American Red Cross and Chaplain Corps.

The buildings on Camp Hill were dilapidated by 1866, with winter winds blowing through holes in the walls. Brackett kept in touch with his fellow church members in Maine, however, and in 1867, one John Storer offered $10,000 to establish a "college" or normal school at Harpers Ferry. There were to be no restrictions as to race, creed, or color, but Storer's purpose was to aid Negro education by helping them to develop their own teachers. Storer's grant was to be matched within a year. The Baptists secured a charter from the West Virginia legislature, raised the matching funds, lobbied in Washington, and early in 1868 the Congress passed legislation that deeded the buildings and other property on Camp Hill to the college.

For 87 years Storer College offered blacks the opportunity to obtain the fundamentals of learning and later expanded its curriculum to include industrial arts, home economics, theology, music, and preparatory courses in law, medicine, and nursing. The school averaged about 150 students each year. Perhaps the most distinguished graduate has been Azikime, Prime Minister of Nigeria. Storer College held classes until 1954, when (ironically again), the U.S. Supreme Court desegregation decision eliminated the need for such a school.

Robert B. Kasparek has worked for the National Park Service for 12 years. He attended the Mather Training Center as a trainee on three occasions. Presently he is a park planner in the NPS Washington office. His other duty stations include Cape Hatteras National Seashore and Everglades and Hot Springs National Parks.

Thus this early college became the forerunner of the Mather Training Center. In 1960, the National Park Service had set up a special task force to take a serious look at the training being given Park Service employees. A training center had been established at Yosemite National Park in 1957 (it was later moved to Grand Canyon) to present employees with fundamentals of Park Service policy and procedures, basic ranger skills, and so on. But the task force found that visitors to the parks had come to expect a much higher quality of interpretation than was being produced. The task force determined that advanced study and training in interpretation and park management was needed. Inasmuch as one training center had been started in the West, they thought it would be practical to have one in the East also, where the majority of the population was located.

Casting about for a suitable site, they came upon Storer College, unused since 1954. Here were buildings that could be readily converted to meet Park Service needs. The site was adjacent to Harpers Ferry National Monument (later changed to Harpers Ferry National Historical Park), which could provide protection and certain administrative services, and was convenient to Park Service headquarters in Washington, D.C., 60 miles away. The legislative process began grinding, and in 1962 Congress authorized acquisition of the college property.

Remodeling of the buildings began. One, known as Cook Hall, was made into a large, comfortable, three-storied dormitory for the trainees. A training staff was formed, and classes began in 1963. The first sessions were held in one of the smaller buildings while the old Armory Superintendent's house (expanded and known as Anthony Hall during the Storer College period) was being developed into the primary training facility. The building was handsomely furnished with two large classrooms, several conference rooms, offices, audiovisual facilities, a lounge, and a respectable library. In 1964 the work was completed, and the building was dedicated as Wirth Hall, in honor of the former director of the National Park Service. The Center itself, of course, is named for Stephen T. Mather, first director of the Service.

At first there were to be only two lengthy classes in advanced interpretive techniques held each year, with about 60 students. It was soon recognized, however, that more intensive effort was needed to meet the increased complexity of park interpretation and the more sophisticated responsibilities of park managers. The training program was expanded in the fall of 1967, and by 1969 it included 17 different courses, with titles such as "Environmental Management Seminar," "Communications: Writing," "Interpretive Operations," and "Administration for Line Man-

NATIONAL PARK SERVICE

Wirth Hall, formerly the Armory Superintendent's house, still occupies Camp Hill and houses the Stephen T. Mather Training Center.

agers." Many of these courses are held two or three times each year. In addition, other meetings and conferences occasionally are held here. The number of trainees attending these courses has risen to well over 800 each year. They include not only National Park Service personnel, but also people from other federal, state, and local agencies, from private concerns, and from foreign countries.

The goal of the training according to Raymond L. Nelson, the Supervisor of the Center, is not to manipulate the thinking of the trainees. Instead, the emphasis is to stimulate these managers, rangers, and interpreters to make their work an extension of their personal awareness of man's place in the natural environment. Ray and his staff of three instructors conduct many of the training sessions but also invite other speakers and instructors from within the Park Service and from other agencies and institutions to conduct classes and seminars. This adds a variety of expertise to the program and makes the training much more effective than if the Training Center staff conducted all the classes themselves. For example, at the Environmental Management Seminar that I attended, one of the guest speakers was Mr. John Kinard, Director of the Anacostia Museum in Washington, D.C. Mr. Kinard, a black, is intensely interested in the problems of the people of Washington's "inner core." How thought-provoking it was to hear him explain how these people think and feel about such things as parks and museums!

The National Park Service Act of 1916 has the mandate of managing the parks "in such manner and by such means" as will conserve the resources and afford enjoyment of them. Thus today the Park Service has its Training Center campuses to serve as nuclei for effectively meeting the growing complexity of providing this conservation and enjoyment. This year a complementary addition to the Mather campus has been the Park Service "Interpretive Design Center." This $1¼ million building hugs the cliff edge next to the Cooke Hall dormitory, overlooking the Shenandoah flowing below. Although not part of the Training Center, the new facility helps provide support for the NPS interpretive program. This building was designed by Ulrich Franzen and Associates of New York to be a studio for the creative people who do the detailed planning, writing, drawing, and production of the entire Park Service interpretive functions: publications, films, museum exhibits, graphics, and other interpretive planning. The south side of the new building is free-flowing along the cliff, with a terrace, while the north side with its forecourt subtly reflects the quiet "classic pattern of the old grounds of Storer College."

But Wirth Hall continues to dominate Camp Hill, overlooking the entire park system, as it were, just as environmental considerations transcend the traditional boundaries of states and nations. The National Park System is made up not only of parks, but also of people, and the Park Service programs designed to conserve the resources and provide for the enjoyment of the visitors will reach their highest function only when the people who carry them out are inspired to do so through change in themselves. The purpose of the Mather Training Center in fostering change is perhaps best expressed on the sign at the entrance to the campus. It reads: "We who study here see the unity of the environment . . . and the willfulness of man. We work that man will adjust to the harmony of the environment . . . while there is yet time." ■

npca at work

NPCA RECOGNIZES ARGENTINE CONSERVATIONIST

The National Parks and Conservation Association has presented a citation to Ing. Italo N. Constantino "in grateful recognition of your work on behalf of a better environment." Ing. Constantino is president of the National Parks Service of Argentina.

In a letter accompanying the citation, NPCA President Anthony Wayne Smith praised Ing. Constantino for having "gone well beyond the call of your duties in extending your influence to all of Latin America as well as throughout your own country.

"Since the time you wrote your thesis at the University of Michigan on the subject of national parks, you have fought as a private citizen and as a public servant for improvement and expansion of national parks."

Noting that Ing. Constantino's knowledge and dedication have earned him honor and responsibility as president of the Latin American Committee on National Parks of the International Union for the Conservation of Nature and Natural Resources (IUCN), Mr. Smith wrote that NPCA "throughout the years has observed with tremendous satisfaction the growth of the concept of national parks throughout Latin America to the point where this park system is second to none in management techniques.

"We appreciate that this largely is due in the first part to your efforts. . . . (This citation) is only a small token of our esteem, which cannot adequately be expressed in any award.

"The lasting reward for your work is the parks themselves and the millions of people who will enjoy them."

ASSOCIATION OPPOSES CANAL

Mrs. Allan D. Cruickshank represented the National Parks and Conservation Association in November at an Army Corps of Engineers hearing on the proposed St. Johns–Indian River Canal. She read into the record a statement opposing construction of the canal.

"The National Parks and Conservation Association," the statement said, "opposes the construction of a navigation channel from the St. Johns River at Sanford to the Indian River near Titusville. We oppose this project on two basic grounds; . . . economically, the canal would be wasteful and . . . ecologically it would be harmful." The statement said channelization of the Indian River could threaten the shad fishery and other marine resources through the "devastating effect of silting and pollution and the mixing of fresh water with the brackish water" of the estuary.

NPCA PARTICIPATES IN HEARINGS

The Association in December participated in four wilderness hearings for units in the national park system, and submitted its views on wilderness at Point Reyes National Seashore to the seashore's master plan team.

Robert Lee Coshland of Tucson presented NPCA's position on the wilderness and master plans for Wupatki National Monument in Arizona. The hearing on the two plans was held in Flagstaff on December 15.

NPCA Board member Richard C. Bradley of Colorado Springs represented the Association in hearings on the wilderness plan for Black Canyon of the Gunnison in Colorado. The hearings were held December 3 in Montrose, Colorado, and December 5 in Gunnison.

Hearings on the wilderness plan for Colorado National Monument were held December 1 and December 16, the first in Grand Junction and the second in Mesa Verde. NPCA was represented at both hearings. Wilderness hearings for the Theodore Roosevelt National Memorial Park were held in Watford City and Medora, both in North Dakota. The Association's wilderness plan for the area, previously developed, was submitted for the record.

In a letter to the Point Reyes Master Plan Team, NPCA representative Jonas Morris said the team has a "unique opportunity to develop an outstanding plan for a truly remarkable area. The key to this plan, from our point of view, would be the severe restriction, if not the total elimination, of automobiles from the Seashore."

". . . we are not always a part of nature, but nature is always with us. . . . we are today too far from nature. You cannot get into your car and drive to nature. . . nature is in your heart. DO, don't be indifferent . . . it is one interdependent world."—*Dr. Roman Vishniac*

conservation news

NEW JERSEY COMMUNITY POINTS THE WAY

Citizens of Middletown, New Jersey, have not only saved a woodland, brook, and marsh but have also developed the techniques of how to do it and published their story as a guide for others. In the introduction to their report they state, "While Poricy Brook may lack the global impact of the Grand Canyon or Snake River, it is typical of hundreds of local skirmishes that are, for the few individuals involved, major battles requiring total involvement and dedication. The conflict is simple—a group of citizens with limited experience and funds opposes a powerful agency or industry whose impending actions threaten some natural resource."

Middletown was rural until recent times but is now becoming a densely populated suburban community. High taxes and real estate promoters have forced people either to accept building development or take the land for some public service. Open space for a livable environment was of low priority until the Middletown Sewerage Authority moved to take the wooded bank of Poricy Brook for a new sewer line. The formation of the Poricy Park Citizens Committee came in response.

Victory was finally achieved. A court order was signed on July 24, 1970, which required the Middletown Sewerage Authority to change its plans. The committee leadership, in retrospect, credits its success to a few working principles which might be used elsewhere:

- Citizens need to become thoroughly informed about the subject.
- There needs to be an alternate proposal or proposals.
- Force the agency to reveal the full costs, including the environmental costs.
- Call upon the aid and advice of experts (but also rely upon local initiative).
- Never relax because things seem to be going well.
- If several false charges are made by the opposition, select one that can be clearly shown to be untrue and hit hard upon that, rather than trying to answer all charges.
- Establish a small executive committee with authority to act on short notice when necessary.

CITIZENS CONSERVATION CORPS

The Citizens Conservation Corps of Allegheny County, Pennsylvania, is carrying on an action program for the protection of the environment that, like the Middletown, New Jersey, program, might well be followed in other communities. It was founded by the Allegheny County Soil & Water Conservation District as a means of spotting polluters and then either persuading them to correct their practices or enlisting the aid of the duly established legal machinery in stopping the violations. Thus the existing restraints now possible are brought to bear rather than waiting for new measures which may be no better enforced than those now on the books.

As the first step, the Soil and Water Conservation District sent a letter of inquiry to the 129 municipalities of the County asking each for a copy of its littering and earth-moving operations ordinance. A file of these was established.

The second step was an inquiry to a wide range of clubs and community organizations asking for the names of persons who might be interested in joining the Citizens Conservation Corps.

The third step came when sufficient names were secured. A meeting was called, the plan explained, pledges of support were taken, and area assignments made. The county was divided into five districts, each with a leader named to whom cooperators (members) might report violations.

Members were given detailed instructions on how to conduct an investigation

and what information would be necessary in making a report to the district leader. These reports, when received by the leader, are examined to determine the validity of the case and to make sure that all basic information is provided. If found to be in order, they are then turned over to the Executive Director for action. When violations appear to be of a minor nature, a warning notice is sent to the responsible individual or firm. More serious cases are reported to the appropriate official agency and then followed up to see that the complaint is not just filed or lost in the paper shuffle.

In the first year and a half of operation, 248 complaints were received, resulting in 60 prosecutions and 170 warnings. A few fell into categories that could best be handled otherwise. At the beginning, there were 52 members of the "CCC." At the end of the year and a half, there were 500!

Although the CCC plan would require adaptation to fit other regions, populations, and political structures, it does offer valuable guidelines for actually doing something about community surroundings.

conservation docket

The National Park Service has scheduled wilderness hearings on Crater Lake National Park, Oregon, for January 21, 1971, in Room 103, Klamath County Courthouse, 320 Main Street, Klamath Falls, Oregon, and on January 23, 1971, in Room 302, Federal Building, 333 West 8th Street, Medford, Oregon.

Following is a list of areas currently being studied by the National Park Service for wilderness or master plans. The former will determine the areas to be given legal protection as wilderness. Master plans set the course of future management. Readers may write to the addresses given to express their views or to get on the mailing list to be informed when public meetings are scheduled.

Acadia National Park, Maine
Box 338, Bar Harbor, Maine 04609

Bandelier National Monument, N.Mex.
Los Alamos, N.Mex. 87544

Big Bend National Park, Tex.
Big Bend National Park, Tex. 79834

Biscayne National Monument, Fla.
c/o Everglades National Park
Box 279, Homestead, Fla. 33030

Cape Hatteras National Seashore, N.C.
Box 457, Manteo, N.C. 27954

Cape Lookout National Seashore, N.C.
Box 177, Beaufort, N.C. 28516

Carlsbad Caverns National Park, N.Mex.
Box 1598, Carlsbad, N.Mex. 88220

Curecanti National Recreation Area, Colo.
334 South 10th Street, Montrose, Colo. 81401

Delaware Water Gap National Recreation Area, Pa. & N.J.
265 S. Courtland St., East Stroudsburg, Pa. 18301

Dinosaur National Monument, Utah–Colo.
Box 101, Dinosaur, Colo. 81610

Fort Bowie National Historical Site, Ariz.
c/o Chiricahua National Monument,
Dos Cabezas, Star Route, Willcox, Ariz. 85643

Gettysburg National Military Park, Pa.
Box 70, Gettysburg, Pa. 17325

Guadalupe Mountains National Park, Tex.
c/o Carlsbad Caverns National Park,
Box 1598, Carlsbad, N.Mex. 88220

Independence National Historical Park, Pa.
313 Walnut Street, Philadelphia, Pa. 19106

Mount McKinley National Park, Alaska
McKinley Park, Alaska 99755

Point Reyes National Seashore, Calif.
Point Reyes, Calif. 94956

Redwood National Park, Calif.
Drawer N, Crescent City, Calif. 95531

Richmond National Battlefield Park, Va.
3215 East Broad Street, Richmond, Va. 23223

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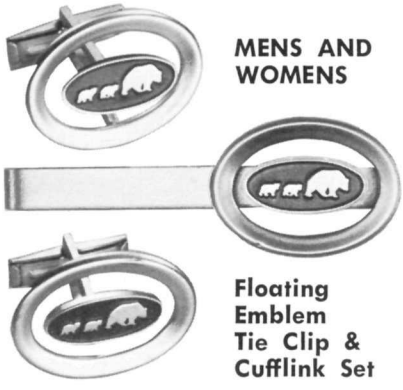

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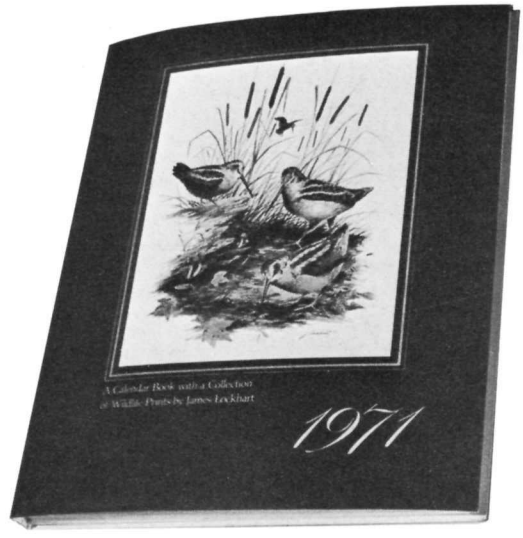

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You'll be proud to have this handsome calendar and appointment book on your desk at home. It has 26 calendar record pages for 1971 with two weeks conveniently arranged to a page. It also contains composite calendars for 1970, 1971 and 1972. There are three extra pages for important names, addresses and telephone numbers.

James Lockhart is one of the country's most famous wildlife artists. His paintings won the top awards in the two most important printing industry contests of 1968 and his work has been shown at the Smithsonian Institution in Washington, D. C. Mr. Lockhart's love of wildlife is apparent in each of these prints, which nature lovers will find irresistible. To see them is to want to display them, and this book makes it easy. Each print is marked with a guideline for removal and trimming.

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- 26 calendar record pages with 2 weeks to the page.
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- Composite calendars for 1970, 1971, 1972.
- 3 extra pages for important names, addresses, telephone numbers.
- Book is wire-o-bound to lie flat when in use.
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